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Nakasone

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(54) **PRESSING DEVICE**

E05F 1/105; E05F 5/00; E05F 5/02; E05F
5/006; E05F 5/022; E05F 5/025; E05F 5/06;
E05F 5/08

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See application file for complete search history.

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(56) **References Cited**

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U.S. PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 69 days.

1,915,249 A * 6/1933 Jorgensen A47B 91/04
152/427
2,553,627 A * 5/1951 Barlow B22C 7/06
16/86 A

(Continued)

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FOREIGN PATENT DOCUMENTS

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JP 60-182476 U 12/1985
JP 4-11942 U 1/1992

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(Continued)

OTHER PUBLICATIONS

(87) PCT Pub. No.: **WO2013/136390**

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International Search Report (ISR) (PCT Form PCT/ISA/210), in
PCT/P2012/007011, dated Jan. 8, 2013.

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PLLC

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(57) **ABSTRACT**

(51) **Int. Cl.**

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(Continued)

A pressing device is provided with a pin member, a coil-like
spring member, and a spring receiving member which has a
through-hole for allowing the pin member to be inserted
therein and which supports one end of the spring member. The
pin member has: a shaft section which has the spring member
disposed on the outer peripheral side thereof; a head section
which is interconnected with one end of the shaft section and
which can come into contact with the contact surface of the
opening/closing body; a spring support section which sup-
ports the other end of the spring member; and an engagement
claw which engages with the outer surface of the mounting
portion and which prevents the pressing device from being
dislocated from the mounting portion.

(52) **U.S. Cl.**

CPC . **E05F 3/18** (2013.01); **E05F 1/105** (2013.01);
E05F 5/02 (2013.01); **F03G 1/10** (2013.01);
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(58) **Field of Classification Search**

CPC **Y10T 16/61**; **Y10T 16/615**; **Y10T 16/625**;
Y10T 16/628; **Y10T 16/6285**; **E05F 3/18**;

15 Claims, 8 Drawing Sheets

